

METHOD AND APPARATUS FOR REDUCING DATA BURST OVERHEAD IN AN ETHERNET PASSIVE OPTICAL NETWORK

ABSTRACT

One embodiment of the present invention provides a system that reduces data burst overhead in an Ethernet passive optical network which includes a central node and at least one remote node, wherein downstream data from the central node is broadcast to the remote nodes, and wherein upstream data from a remote node is transmitted to the central node in a unicast manner. During operation, the central node transmits grant messages to a number of remote nodes, wherein a grant message for a specified remote node assigns a start time and a duration of a transmission timeslot in which the specified remote node may transmit an upstream data burst. In response to the grant messages, the central node then receives a number of upstream data bursts, wherein the time gap between two consecutive upstream data bursts is less than the summation of a default laser turn-on time, a default laser turn-off time, an AGC period, and a CDR period.